

Claim Amendments

Please amend claims 1, 4, 6, 7, 9-13, 18, 19, and 21, cancel claims 2, 3, 5, 8, 22, and 23, and add claims 24-27 as follows:

1. (currently amended) A thermal process station for thermally processing a workpiece, the station comprising:

an enclosed process chamber in which a heated platen is positioned, the heated platen having a face over which the workpiece is positioned during a thermal treatment; and

a lid assembly comprising:

a first stage comprising an additional enclosed chamber in which an additional heat source is positioned, the additional heat source being in thermally conductive contact with the process chamber; and

a second stage comprising at least a portion of an inlet plenum system through which a gas is supplied to the process chamber and at least a portion of an exhaust plenum system through which a gas is exhausted from the process chamber, wherein at least one of the inlet and exhaust plenum systems comprises a plurality of radial flow channels.

2. (canceled)

3. (canceled)

4. (currently amended) The thermal process station of claim [[3]]1, wherein the inlet plenum system comprises a plurality of radial flow channels.

5. (canceled)

6. (currently amended) The thermal process station of claim 1, ~~further comprising a lid assembly comprising the additional enclosed chamber, wherein the~~

additional heat source ~~positioned in the additional enclosed chamber~~ comprises a planar heating device, and wherein the ~~additional enclosed chamber~~first stage further comprises a headspace above a top surface of the planar heating device.

7. (currently amended) The thermal process station of claim 6, wherein the planar heating device is adjacent ~~the~~a floor of the ~~additional enclosed chamber~~first stage.

8. (canceled)

9. (currently amended) The thermal process station of claim 1, wherein the first stage further comprising a lid assembly, wherein the lid assembly comprises the additional enclosed a lid chamber in which the additional heat source is positioned.

10. (currently amended) The thermal process station of claim ~~[[9]]~~1, wherein the additional heat source is spaced apart from the enclosed process chamber.

11. (currently amended) The thermal process station of claim ~~[[10]]~~1, wherein the additional heat source is thermally coupled to the enclosed process chamber by a plurality of radial walls.

12. (currently amended) The thermal process station of claim 1, wherein a heating face of the additional heat source is opposed to the heated platen face.

13. (currently amended) A thermal process station for thermally processing a workpiece, the station comprising:

a housing comprising a heated lid assembly and a bottom housing assembly that closably engages the heated lid assembly;

a process chamber inside the housing defined at least in part by the heated lid assembly and the bottom housing assembly;

a lid chamber inside the heated lid assembly;

a heat source ~~having a heater face, the heat source being~~ positioned inside the lid chamber in a manner such that ~~the heater face~~ the heat source is in thermal contact with the process chamber; and

a heated platen inside the process chamber on which the workpiece is supported during a thermal treatment.

14. (original) The thermal process station of claim 13, wherein the heated lid assembly further comprises:

a first stage comprising the lid chamber; and

a second stage positioned between the first stage and the process chamber, the second stage comprising at least a portion of an inlet plenum system and at least a portion of an exhaust plenum system.

15. (original) The thermal process station of claim 13, wherein the heated lid assembly further comprises:

an upper stage comprising the lid chamber, wherein the heat source positioned in the lid chamber is thermally coupled to a floor of the lid chamber; and

a lower stage comprising one or more walls that help to thermally couple the upper stage to the process chamber.

16. (original) The thermal process station of claim 13, wherein the heat source is spaced apart from the process chamber.

17. (original) The thermal process station of claim 16, wherein the heat source is thermally coupled to the process chamber by a plurality of radial walls.

18. (currently amended) A thermal process station for thermally processing a workpiece, the station comprising:

a heated lid assembly ~~overlying~~ closeably engaging a bottom housing assembly;

a processing chamber defined at least in part by the bottom housing assembly;

at least a portion of an inlet plenum system in the heated lid assembly comprising a gas flow path in fluid communication with the processing chamber; and

at least a portion of an exhaust plenum system in the heated lid assembly comprising a gas flow path in fluid communication with the process chamber, wherein at least one of the inlet and exhaust plenum systems comprises a plurality of radial flow channels.

19. (currently amended) The thermal process station of claim 18, wherein at least a portion of the radial flow channels differ dimensionally from each other in a manner that enhances a uniformity characteristic of a transfer of thermal energy from the heated lid assembly to the process chamber.

20. (original) The thermal process station of claim 18, wherein the heated lid assembly further comprises:

a lid chamber comprising;

a heat source positioned in the lid chamber; and

a headspace above a top surface of the heat source.

21. (currently amended) A method of improving the thermal uniformity of a workpiece during a thermal treatment, comprising the steps of:

providing a first heat source having a first heating face;

providing a second heat source having a second heating face, wherein the first and second heating faces are opposed to each other such that at least part of the space between the first and second heat source define a process chamber;

providing an inlet plenum system comprising a gas flow path in fluid communication with the process chamber and an exhaust plenum system comprising a gas flow path in fluid communication with the process chamber, wherein at least one of the inlet and exhaust plenum systems comprises a plurality of radial flow channels; and

positioning the workpiece between the first and second, opposed heating faces during at least a portion of the thermal treatment.

22. (canceled)

23. (canceled)

24. (new) The thermal process station of claim 1, further comprising:
a first gap between a major surface of the heated platen and a first major surface of the workpiece such that a heat flux from the heated platen to the first major surface of the workpiece flows across the first gap; and
a second gap between the additional heat source and a second major surface of the workpiece such that a heat flux from the additional heat source to the second major surface of the workpiece flows across the second gap.

25. (new) The thermal process station of claim 13, further comprising:
a first gap between a major surface of the heated platen and a first major surface of the workpiece such that a heat flux from the heated platen to the first major surface of the workpiece flows across the first gap; and
a second gap between the heat source and a second major surface of the workpiece such that a heat flux from the heat source to the second major surface of the workpiece flows across the second gap.

26. (new) The thermal process station of claim 20, further comprising:
a heated platen inside the processing chamber on which the workpiece is supported during a thermal treatment;
a first gap between a major surface of the heated platen and a first major surface of the workpiece such that a heat flux from the heated platen to the first major surface of the workpiece is across the first gap; and

a second gap between the heat source and a second major surface of the workpiece such that a heat flux from the heat source to the second major surface of the workpiece flows across the second gap.

27. (new) A thermal process station for thermally processing a workpiece, the station comprising:

an enclosed process chamber in which a heated platen is positioned, the heated platen having a face over which the workpiece is positioned during a thermal treatment; and

a lid assembly comprising:

a first stage comprising a lid chamber in which an additional heat source is positioned, the additional heat source being in thermally conductive contact with the process chamber; and

a second stage comprising at least a portion of an inlet plenum system through which a gas is supplied to the process chamber and at least a portion of an exhaust plenum system through which a gas is exhausted from the process chamber, wherein the second stage is positioned between the first stage and the enclosed process chamber, wherein at least one of the inlet and exhaust plenum systems comprises a plurality of radial flow channels, and wherein the radial flow channels differ dimensionally from each other.